

Applicant(s): MATHIEU GAGNE, HAIM KOPYLOVITZ AND ISHAY KEDEM  
Serial No.: 10/799,972 00-142CON  
Filed: March 12, 2004

In the Claims

Please amend claim 34 as follows:

34 (amended). In a data processing system with a host and a data storage facility including a cache memory, a standard storage device for receiving write commands and data from the host through the cache memory and a BCV mirror storage device for backing up the standard storage device wherein each of the storage devices comprises a plurality of tracks on a physical disk and the BCV mirror storage device operates either in a first, write-enabled, mirror mode for mirroring the first storage device or in a split mode isolated from the first storage device, a track identification table for each of storage device defining the status of the data in each track of the standard and BCV mirror storage devices, a data recovery program stored on a computer readable medium which when executed by a processor restores [for restoring] data in the standard storage device comprising:

A) a program step for attaching the BCV mirror storage device in a read-only state to the standard storage device,

Applicant(s): MATHIEU GAGNE, HAIM KOPYLOVITZ AND ISHAY KEDEM  
Serial No.: 10/799,972 00-142CON  
Filed: March 12, 2004

- 20           B) a program step for identifying tracks to be restored from the BCV mirror storage device to the standard storage device, and
- C) a program module for initiating concurrent restoration and updating of the data in each track to be restored by performing the steps of:
- 25            i) copying the data from the identified track in the BCV mirror storage device to the cache memory in response to the information in the track identification table associated with the standard storage device,
- ii) transferring update data received from the host for the track to the cache memory, and
- iii) responding to a predetermined track status for a standard storage device track by transferring corresponding data from the cache memory to the standard storage device.
- 30
- 35

35 (previously presented). A data recovery program as recited in claim 34 additionally including a step of identifying the locations in the standard storage device that are altered during the updating procedure.

Applicant(s): MATHIEU GAGNE, HAIM KOPYLOVITZ AND ISHAY KEDEM  
Serial No.: 10/799,972 00-142CON  
Filed: March 12, 2004

36 (previously presented). A data recovery program as recited  
in claim 35 wherein each said update transfer comprises a  
writing process that writes data to the standard storage  
device and wherein said program additionally comprises a  
program step for monitoring the operation of the copying  
and writing processes to enable the restoration and update  
transfers.

5

37 (previously presented). A data recovery program as recited  
in claim 36 wherein each of the data storage devices  
maintains status information for monitoring the validity  
of the data in the storage locations of the standard and  
BCV mirror storage devices and wherein said step of data  
copying transfers data to a storage location in the  
standard storage device prior to a write operation whereby  
the status information for the standard and BCV mirror  
storage devices indicate that the data in those locations  
are invalid and valid, respectively.

5

10

38 (previously presented). A data recovery program as recited  
in claim 37 wherein each update transfer writes an entire  
storage location in the standard storage device and  
wherein the writing process causes the status information

Applicant(s): MATHIEU GAGNE, HAIM KOPYLOVITZ AND ISHAY KEDEM  
Serial No.: 10/799,972 00-142CON  
Filed: March 12, 2004

5 to indicate that the data in the standard and BCV mirror storage devices are valid and invalid, respectively.

39 (previously presented). A data recovery program as recited in claim 37 wherein an update transfer step writes a portion of a storage location in the standard storage device, said writing process causing the status information to indicate that the data in the storage locations in the standard and BCV mirror storage devices are invalid and valid, respectively, whereby said copy process initiates a transfer of the combined written data and data from the BCV mirror storage device to the storage 10 location in the standard storage device.

40 (previously presented). A data recovery program as recited in claim 37 wherein each of the data storage devices has associated status information for monitoring the validity of the data in the storage locations of the standard and BCV mirror storage devices and wherein an update transfer step writes data to a storage location in the standard storage device prior to the restoration procedure, the transfer of data to a location in the standard storage device by the writing process being dependent upon an 5

Applicant(s): MATHIEU GAGNE, HAIM KOPYLOVITZ AND ISHAY KEDEM  
Serial No.: 10/799,972 00-142CON  
Filed: March 12, 2004

10 indication in the status information of valid data in the standard storage device location.

41 (previously presented). A data recovery program as recited in claim 37 wherein each of the data storage devices has associated status information for monitoring the validity of the data in the storage locations of the standard and BCV mirror storage devices and wherein an update data transfer step writes data to a portion of a storage location in the standard storage device prior to the restoration procedure, the writing process leaving the status information unchanged whereby subsequently the copy process initiates a transfer of the combined data in the corresponding location of the BCV mirror storage device and the written data to the location in the standard storage device.

10

42 (previously presented). A data recovery program as recited in claim 41 wherein said data copying additionally includes the step of causing the status information for the storage locations in standard and BCV mirror data storage devices to assume invalid and valid states, respectively.

5

Applicant(s): MATHIEU GAGNE, HAIM KOPYLOVITZ AND ISHAY KEDEM  
Serial No.: 10/799,972 00-142CON  
Filed: March 12, 2004

43 (previously presented). A data recovery program as recited in claim 34 wherein said copying of data by the restoration procedure includes an identification of all the data in the BCV mirror storage device.

44 (previously presented). A data recovery program as recited in claim 34 wherein the standard and BCV mirror storage devices are further characterized by a second identification of data that reflects changes in the standard storage device after the BCV mirror storage device transfers to the second operating mode, said first identification of data to be transferred by the restoration procedure being set to correspond to the second identification.  
5